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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-20347; Directorate Identifier 2004-NM-226-AD; Amendment 39-14284; AD 2005-19-19]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes. This AD requires installing an updated version of the operational program software (OPS) and certain other software in the flight management computers (FMCs); and doing configuration checks to ensure that certain software is properly installed and doing other specified actions. This AD also requires reinstalling software, if necessary. This AD results from one operator reporting FMC map shifts on several Model 737-400 series airplanes with dual FMCs, using OPS version U10.4A. We are issuing this AD to prevent the FMC from displaying the incorrect actual navigation performance value to the flightcrew, which could prevent adequate alerting of a potential navigation error. This condition could result in a near miss with other airplanes or terrain, or collision if other warning systems also fail.

DATES: Effective October 26, 2005.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of October 26, 2005.

ADDRESSES: You may examine the AD docket on the Internet at *http://dms.dot.gov* or in person at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street SW., Nassif Building, room PL-401, Washington, DC.

Contact Boeing Commercial Airplanes, PO Box 3707, Seattle, Washington 98124-2207, for service information identified in this AD.

FOR FURTHER INFORMATION CONTACT: Sam Slentz, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6483; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Examining the Docket

You may examine the AD docket on the Internet at *http://dms.dot.gov* or in person at the Docket Management Facility office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Management Facility office (telephone (800) 647-5227) is located on the plaza level of the Nassif Building at the street address stated in the ADDRESSES section.

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to certain Boeing Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes. That NPRM was published in the Federal Register on February 15, 2005 (70 FR 7687). That NPRM proposed to require installing an updated version of the operational program software (OPS) in the flight management computers (FMCs), and doing other specified actions. That action also proposed to require reinstalling software, if necessary.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Support for the Proposed AD

Two commenters support the proposed AD.

Request To Revise Applicability

Two commenters request that we revise the applicability of the NPRM so that it applies to Boeing Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes equipped with two certain FMCs having part numbers (P/Ns) 171497-05-01 or 176200-01-01, installed with OPS versions U10.3, U10.4, U10.4A, or U10.5. One commenter, the airplane manufacturer, states that, although the airplanes identified in the effectivity of Boeing Alert Service Bulletins 737-34A1801 and 737-34A1821, both dated July 15, 2004, have at least one of the affected FMCs installed, not all of those airplanes have two of the affected FMCs installed. The commenter states that these airplanes also may not have the affected version of FMC OPS software installed.

In addition, the same commenter states that, for Model 737-600, -700, -700C, -800 and -900 series airplanes, it began delivering airplanes with OPS version U10.5A on airplanes with line numbers 1529 and higher. The airplane manufacturer, therefore, also requests that we include affected line numbers 1 through 1528 in the applicability of the NPRM.

According to the second commenter, the changes in Boeing Alert Service Bulletin 737-34A1821 are only applicable to airplanes equipped with FMCs, which are 4 modular concept units (MCU) wide, installed with OPS version 10.0 and newer. The commenter states that many of the airplanes identified in the effectivity of Boeing Alert Service Bulletin 737-34A1821 have FMCs that are 8 MCU wide and are installed with earlier versions of OPS, such as U5 and U7.5. The commenter also states that, for airplanes with 8-MCU FMCs, operators would have to upgrade the hardware from 8 MCU to 4 MCU and install new operational program configuration (OPC) software, before they could comply with the installation of OPS version U10.5A.

We partially agree. By referencing the airplanes identified in Boeing Alert Service Bulletins 737-34A1801 and 737-34A1821 in the applicability of the NPRM, we inadvertently applied the proposed

AD to more airplanes than necessary. Furthermore, it was not our intention to require concurrent hardware and software changes as the second commenter points out. We have revised paragraph (c) of this AD to clarify that it applies to Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes, certificated in any category; equipped with two certain FMCs having P/N 171497-05-01 or 176200-01-01; installed with OPS version U10.3, U10.4, U10.4A, or U10.5.

We cannot, however, include the line numbers of certain affected airplanes in the applicability of this AD. Although the commenter has provided the correct line numbers for the affected airplanes in this AD, we have determined, in coordination with the manufacturer, that we should not use line numbers in the applicability of an AD. In the past, using line numbers has caused errors in the effectivity of the service bulletin, and consequently in the applicability of the AD. Therefore, we have not added line numbers of certain airplanes to the applicability of this AD.

Request To Exclude Certain Actions

One commenter requests that we exclude the proposed requirement to maintain an onboard software media binder with the latest version of OPS. The commenter states this proposed requirement, which is referenced in paragraph (f) of the NPRM as one of the "* * * other specified actions * * *," could be interpreted as creating a regulatory requirement to keep a media binder onboard an affected airplane. The commenter also states that several operators have removed onboard media binders because they create an administrative burden.

We agree that the requirement to replace the existing OPS disk set in the airplane's software media binder with the new OPS disk set is not necessary for ensuring that the unsafe condition of this AD is adequately addressed. Therefore, we have deleted the requirement to do the other specified actions from paragraph (f) of this AD. Instead, we have added new paragraphs (f)(1) and (f)(2) to this AD, which specify installing certain software and doing certain configuration checks for adequately addressing the unsafe condition. We have also specified these actions in the Summary paragraph of this AD.

Request To Use an Alternative Method of Compliance (AMOC)

One commenter, the airplane manufacturer, requests that we allow the option of installing OPS version U10.6, in accordance with Boeing Service Bulletin 737-34-1768 (for Model 737-600, -700, -700C, -800, and -900 series airplanes) or Boeing Service Bulletin 737-34-1879 (for Model 737-300, -400, and -500 series airplanes), as applicable. The commenter states that version U10.6 is based on version U10.5a and also prevents the FMC from displaying the incorrect actual navigation performance value to the flightcrew. The commenter further states that version U10.6 is the latest certified version of FMC OPS software, and that it is currently installed in production on Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes.

We agree to allow operators the option of installing OPS version U10.6 to address the unsafe condition of this AD. Since issuance of the NPRM, we have reviewed Boeing Service Bulletin 737-34-1768 and Boeing Service Bulletin 737-34-1879, both dated August 11, 2005. These service bulletins describe procedures for installing OPS version U10.6 having P/N 549849-016 and certain other software in the left and right FMCs, and doing configuration checks to ensure that certain software is properly installed. For Model 737-300, -400, and -500 series airplanes, the certain other software includes the software options operational program configuration (OPC) software that was originally installed before installation of OPS version U10.6 and the navigational database (NDB) software. For Model 737-600, -700, -700C, -800, and -900 series airplanes, the certain other software includes the applicable OPC software, the new compatible model/engine database (MEDB) software, and the NDB software.

For certain Model 737-600, -700, -700C, -800, and -900 series airplanes, Boeing Service Bulletin 737-34-1768 also describes procedures for installing common display system (CDS) OPC software in

the left and right display electronic units. Operators should note that this is additional work, which is not required if an operator installs OPS version U10.5a in accordance with Boeing Alert Service Bulletin 737-34A1801, dated July 15, 2004. We have determined that accomplishing the actions specified in the applicable service information adequately addresses the unsafe condition of this AD. Therefore, we have added a new paragraph (h) to this AD and re-lettered the subsequent paragraphs accordingly.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

There are about 3,482 airplanes of the affected design in the worldwide fleet. This AD affects about 1,312 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

ESTIMATED COSTS

Boeing model	Work hours	Average labor rate per hour	Parts	Cost per airplane
737–300, –400, and –500 series airplanes	1	$65	$15	$80
737–600, –700, –700C, –800, and –900 series airplanes	2	65	15	145

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD. See the ADDRESSES section for a location to examine the regulatory evaluation.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at www.faa.gov/aircraft/safety/alerts/

2005-19-19 Boeing: Amendment 39-14284. Docket No. FAA-2005-20347; Directorate Identifier 2004-NM-226-AD.

Effective Date

(a) This AD becomes effective October 26, 2005.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Boeing Model 737-300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes, certificated in any category; equipped with two Smiths Industries Aerospace Flight Management Computers (FMCs) having part number 171497-05-01 or 176200-01-01; installed with operational program software (OPS) version U10.3, U10.4, U10.4A, or U10.5.

Unsafe Condition

(d) This AD was prompted by one operator reporting FMC map shifts on several Model 737-400 series airplanes with dual FMCs, using OPS version U10.4A. We are issuing this AD to prevent the FMC from displaying the incorrect actual navigation performance value to the flightcrew, which could prevent adequate alerting of a potential navigation error. This condition could result in a near miss with other airplanes or terrain, or collision if other warning systems also fail.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

Install Updated Version of OPS

(f) Within 180 days after the effective date of this AD, do the actions specified in paragraphs (f)(1) and (f)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-34A1801, dated July 15, 2004 (for Model 737-600, -700, -700C, -800 and -900

series airplanes); or Boeing Alert Service Bulletin 737-34A1821, dated July 15, 2004 (for Model 737-300, -400, and -500 series airplanes); as applicable. Where the service bulletin specifies a configuration check, certificated maintenance personnel must perform the configuration check.

(1) Install the updated version of the OPS, the compatible model/engine database (MEDB) software if applicable, the current version of the navigational database (NDB) software, and the software options database (OPC) in the left and right FMCs.

(2) Do configuration checks of the left and right FMCs to ensure that the updated version of the OPS, compatible version of the MEDB software if applicable, and OPC software is correctly installed.

Reinstall Software, if Necessary

(g) If the incorrect software version of the OPS, MEDB software if applicable, or OPC software is found installed on any FMC during any configuration check required by paragraph (f) of this AD: Before further flight, reinstall the software, as applicable. Do the reinstallation of any software in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-34A1801, dated July 15, 2004; or Boeing Alert Service Bulletin 737-34A1821, dated July 15, 2004; as applicable.

Optional Installation of OPS Version U10.6

(h) Doing the applicable actions specified in paragraphs (h)(1) and (h)(2) of this AD, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-34-1768, dated August 11, 2005 (for Model 737-600, -700, -700C, -800, and -900 series airplanes); or Boeing Service Bulletin 737-34-1879, dated August 11, 2005 (for Model 737-300, -400, and -500 series airplanes), as applicable, is acceptable for compliance with the corresponding requirements of paragraphs (f) and (g) of this AD.

(1) Install version U10.6 of the OPS software, the applicable OPC software, the new compatible MEDB software if applicable, and the NDB software in the left and right FMCs; install the common display system (CDS) OPC software in the left and right display electronic units if applicable; and do configuration checks to ensure that certain software is properly installed. Where the service bulletin specifies a configuration check, certificated maintenance personnel must perform the configuration check.

(2) If the incorrect software version of the OPS, OPC software, CDS OPC software if applicable, or MEDB software if applicable, is found installed during any configuration check required by paragraph (h)(1) of this AD: Before further flight, reinstall the software, as applicable. Do the reinstallation of any software in accordance with the applicable service bulletin.

Alternative Methods of Compliance (AMOCs)

(i) The Manager, Seattle Aircraft Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

Material Incorporated by Reference

(j) You must use Boeing Alert Service Bulletin 737-34A1801, dated July 15, 2004; or Boeing Alert Service Bulletin 737-34A1821, dated July 15, 2004, as applicable, to perform the actions that are required by this AD, unless the AD specifies otherwise. The optional actions, if accomplished, must be performed in accordance with Boeing Service Bulletin 737-34-1768, dated August 11, 2005;

or Boeing Service Bulletin 737-34-1879, dated August 11, 2005, as applicable. The Director of the Federal Register approved the incorporation by reference of these documents in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for a copy of this service information. You may review copies at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street SW., room PL-401, Nassif Building, Washington, DC; on the Internet at *http://dms.dot.gov*; or at the National Archives and Records Administration (NARA). For information on the availability of this material at the NARA, call (202) 741-6030, or go to *http://www.archives.gov/federal-register/cfr/ibr-locations.html*.

Issued in Renton, Washington, on September 12, 2005.
Kalene C. Yanamura,
Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.
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